

WHAT IS CLAIMED IS:

1. A system design support method comprising:
generating a first system specification described
in a state transition table form using a state
5 transition unit which includes information relating to
an execution control over the system;
generating a second system specification described
in an execution control table form which includes an
execution processing content in the system as a set of
10 state transition units, based on the first system; and
converting the second system specification
described in an execution control table form to a third
system specification having an executable form
described in a system description language.
- 15 2. The method according to claim 1, wherein each
of the state transition units includes at least
a current state taken by the system,
an event serving as a cause of the state
transition, and
20 a next state taken by the system upon occurrence
of a state transition.
3. The method according to claim 2, wherein the
state transition unit further includes
a condition that allows a state to make a
25 transition, and
an action to be executed before a transition to a
next state.

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4. The method according to claim 1, wherein the information relating to the execution control includes a program of which an execution control is triggered in association with the state transition and

5 a type of execution control over the program, the type of an execution control includes at least

a start of the system,

a forced termination of processing based on an interrupt caused by occurrence of an event,

10 a pause of processing based on an interrupt caused by occurrence of an event,

notification of an event which notifies that processing is ended, and

15 a resume from the pause of processing based on an interrupt.

5. The method according to claim 1, wherein the execution processing content includes at least

a transition that has occurred,

a program during execution,

20 a type of execution control to the program during execution,

a program to be executed next, and

a type of an execution control to the program to be executed next.

25 6. The method according to claim 1, wherein the converting comprises

expanding the execution processing content to a

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specification described in the system description language in accordance with the first rule; and
integrating the expanded specification in accordance with the second rule.

5 7. The method according to claim 6, wherein the system description language includes a specification description language based on C (SpecC).

8. A computer program product comprising:

10 a computer storage medium and a computer program code mechanism embedded in the computer storage medium for causing a computer to support designing, the computer code mechanism comprising:

15 a computer code device configured to generate a first system specification described in a state transition table form using a state transition unit which includes information relating to an execution control over the system

20 a computer code device configured to generate a second system specification described in an execution control table form which includes an execution processing content in the system as a set of state transition units, based on the first system; and

25 a computer code device configured to convert the second system specification described in an execution control table form to a third system specification having an executable form described in a system description language.

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9. The computer program product according to claim 8, wherein the state transition unit includes at least

5 a current state taken by the system,
an event serving as a cause of the state transition, and
a next state taken by the system upon occurrence of a state transition.

10 10. The computer program product according to claim 8, wherein the state transition unit further includes

a condition that allows a state to make a transition, and
15 an action to be executed before a transition to a next state.

11. The computer program product according to claim 8, wherein the information relating to the execution control includes

20 a program of which an execution control is triggered in association with the state transition and

a type of execution control over the program, the type of an execution control includes at least

a start of the system,
a forced termination of processing based on
25 an interrupt caused by occurrence of an event,
a pause of processing based on an interrupt caused by occurrence of an event,

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notification of an event which notifies that processing is ended, and

a resume from the pause of processing based on an interrupt.

5 12. The computer program product according to claim 8, wherein the execution processing content includes at least

a transition that has occurred,

a program during execution,

10 a type of execution control to the program during execution,

a program to be executed next, and

a type of an execution control to the program to be executed next.

15 13. The computer program product according to claim 8 comprising a code device converting the first system specification described in the execution control table form to the third system specification having the executable form described in the system description language, the code device including:

a computer code device configured to expand the execution processing content to the specification described in the system description language in accordance with the first rule; and

25 a computer code device configured to integrate the expanded specification in accordance with the second rule;

14. The computer program product according to claim 8, wherein the system description language includes a specification description language based on C (SpecC).

5 15. A design support system comprising:

creating a system specification model comprised of a specification of a computation and a specification of a communication at a system level;

10 dividing and distributing partial structures of the system specification model into partial elements of a predetermined architecture to create an architecture model;

15 combining communication protocols between the partial elements of the architecture based on the specification of the communication to create a communication model;

20 associating the system specification model, the architecture model, and the communication model each other, and recording the associated model as a system specification;

generating a hardware specification from the system specification ;

generating a software specification from the system specification; and

25 generating a first system specification described in a state transition table form using a state transition unit which includes information relating to

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an execution control over the system;

generating a second system specification described
in an execution control table form which includes an
execution processing content in the system as a set of
state transition units, based on the first system; and

converting the second system specification
described in an execution control table form to a third
system specification having an executable form
described in a system description language.

16. The design support system according to
claim 15, further comprising

forming a system specification model component in
order to reuse the component in creating the system
specification model, architecture model, and the
communication model.

17. A computer program product comprising:

a computer storage medium and a computer program
code mechanism embedded in the computer storage medium
for causing a computer to support a designing, the
computer code mechanism comprising:

a computer code device configured to create a
system specification model comprised of a specification
of a computation and a specification of a communication
at a system level;

a computer code device configured to divide and
distribute partial structures of the system
specification model into partial elements of a

predetermined architecture to create an architecture model;

5 a computer code device configured to combine communication protocols between the partial elements of the architecture based on the specification of the communication to create a communication model;

10 a computer code device configured to associate the system specification model, the architecture model, and the communication model, and to record the associated model as a system specification;

a computer code device configured to generate a hardware specification from the system specification ;

15 a computer code device configured to generate a software specification from the system specification; and

20 a computer code device configured to generate a first system specification described in a state transition table form using a state transition unit which includes information relating to an execution control over the system;

25 a computer code device configured to generate a second system specification described in an execution control table form which includes an execution processing content in the system as a set of state transition units, based on the first system; and

a computer code device configured to convert the second system specification described in an execution

control table form to a third system specification having an executable form described in a system description language.

18. The computer program product according to
5 claim 17, further comprising

a computer code device configured to form a system specification model component in order to reuse the component in creating the system specification model, architecture model, and the communication model.

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